

## **APPENDIX A**

### **EVALUATION OF THE TWO CENTRAL VALLEY ARRA SECTIONS (TO DETERMINE THE OPTIMUM SECTION TO BEGIN CONSTRUCTION)**

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#### **General Comment:**

The environmental process is currently being conducted therefore in many instances more than one alignment alternative is being evaluated and will be available for eventual selection as the environmental process is concluded. In all instances typical alignment sections, including alternatives, have been used for costing reasons, however this should not be construed as a preference for one alignment over another, but rather a necessity for reason of fair costing.

#### **A. Eligibility of Applications:**

To date, the California High-Speed Rail Authority has been successful in securing an allocation of \$2.965 billion in total Federal HSIPR funding (plus an additional \$16M dedicated to the San Francisco to San Jose section) that can be applied to construction of the Phase 1 sections. With a planned state match of \$1.962 billion, a total of \$4.333 billion<sup>(1)</sup> is available to initiate construction work [referred to as “Available Funding” in this document]. All allocated funds need to be applied to one section of the alignment (except for the \$16M which has been specifically allocated by the FRA to the San Francisco to San Jose section). FRA is requiring the selection of an High-Speed Rail (HST) section to initiate a grant agreement to provide construction financing and this will be conditioned upon completion of environmental studies and selection of a final alignment and the issuance of a ROD/NOD by fall of 2011.<sup>(2)</sup>

Although the amount of HSIPR funding is substantial, and more than allocated to any other program in the nation, it is less than the amount which was requested from the FRA in the application submitted by the Authority on August 6, 2010, when the FY2010 funding application was submitted. The Authority has approached the FRA for additional funding, particularly as funding from other states may become available.

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*Footnote:*

*1) \$2.25 billion minus \$400M earmarked for TJPA’s Transbay Terminal = \$1.85 billion minus \$194M allocated to Phase 1 PE/NEPA/CEQA work = \$1.656 billion of Federal funds matched 50/50 with GO Bond funds = \$3.312 billion plus \$715 million new FY10 HSIPR application, matched 70/30 with GO Bond funds = a total of \$4.333 billion available for construction.*

*2) As the ROD/NOD for such selected alignment would not yet be completed by the time the Grant / Cooperative agreement is signed with the FRA, such Agreement would be conditioned on the successful conclusion of the environmental impact studies, the selection of the final alignment within the selected section and the conclusion of the ROD/NOD for the section by the fall of 2011.*

The FRA requires that any rail project using ARRA funding be capable of demonstrating “Operational Independence”/ “Independent Utility” as defined in Sec. 3.5.2 of the Notice of Funding Availability (NOFA) upon completion. A project is considered to have Operational Independence “if, upon being implemented, it will provide tangible and measurable benefits, even if no additional investments in the same service are made.” Examples of these benefits include “operational reliability improvements, travel-time reductions, and additional service frequencies resulting in increased ridership.” In practice, this requirement means that the improvements can be used for existing or new intercity rail passenger operations, including Amtrak and other intercity service should no further High-Speed Rail funds be made available. Importantly, such service is clearly specified as being “intercity service” as opposed to enhanced commuter rail service. In both the Central Valley ARRA sections Amtrak’s *San Joaquin’s* would offer operational independence by connecting the new infrastructure to the existing BNSF network, on which the San Joaquin service presently operates.

The need to demonstrate “Operational Independence” and also to meet other FRA requirements determines that one portion of the two Central Valley sections will be initially constructed. Combined Federal and State funding is sufficient to provide only one operationally independent corridor. However, additional funding ultimately will be required to fully complete the work necessary to support high-speed train operations and to procure the trains. The Authority will be developing a new business/funding plan that will detail how additional funding will be secured from Federal, State, local and private sources to extend beyond the first segment and to finally complete the entire CHSTP system.

#### **B. Evaluation of the ARRA-eligible Sections**

The following chronology highlights events leading up to the Board’s selection of the ARRA Section for initial construction of the California High-Speed Train Project:

- On January 28, 2010, USDOT announced the selection of the four sections eligible to receive up to \$1.656 billion (see footnote 1), leaving the decision to the Authority as to which section would be built first.
- As part of its application for FY 2010 HSIPR funding the Authority redefined the four ARRA-eligible sections and submitted them to FRA as part of its applications for additional funding.
- On October 25, 2010, the USDOT announced an additional \$715 million in FY10 SDP funds for use by the Authority in the Central Valley. On November 4, 2010, the FRA clarified that both the FY09 ARRA funds and FY10 SDP funds must be applied to a single Central Valley project to be determined by the Authority.
- A total of \$4.33 billion of FY09 ARRA + FY10 HSIPR and Prop 1A matching funding is available for final design and construction of the initial Central Valley “ARRA Section.”

- At its November 4, 2010, meeting, the Authority Board adopted criteria for selecting the section/usable segment in which to initiate construction of the California High-Speed Train Project.
- Staff developed four Alternatives<sup>3</sup> within the Central Valley sections that meet the FRA and Prop 1A requirements, which can be built within the available \$4.33 billion and which will be described below.

### **C. The Central Valley Alignment**

Please refer to Figures 1 and 2 of the attached “Backup Information, Maps and Data.”

The sections which qualify for FRA Funding include the alignment beginning near Castle Commerce Center north of Merced, through Fresno, and down to Bakersfield. This alignment is made up of two sections which are separately being environmentally cleared, namely:

- The Merced to Fresno section which includes the Wye in the vicinity of Chowchilla, as well as the extension north of Merced to the Castle Commerce Center.
- The Fresno to Bakersfield section.

Although reference is often made to the application of the funds being made to either of these two sections, in fact the application by the Authority to the FRA included alternatives, which are combinations of the two sections, and due to their adjacency, this concept is acceptable to the FRA.

### **D. The Evaluated Sections**

#### **The “Best Fit” allocation of the Available Funding:**

Since the amount of HSIPR funding is less than the amount which was requested from the FRA in the application submitted by the Authority on August 6, 2010, staff applied the Available Funding to possible sections and portions thereof, with the aim to optimize the use of the funds, but at the same time to ensure that “Operational Independence”/ “Independent Utility” is achieved with each of the selected alignments. This has been done within the overall alignment starting from the Castle Commerce Center all the way down to Bakersfield, thus investigating combinations of alignment which would meet these criteria. The Authority staff and its Consultants investigated permutations and combinations of possible alignments, starting from Bakersfield in the south and from Castle Commerce Center in the north as well as from other possible starting and ending points along the total alignment, to find viable possibilities and the best possible alignments which would make best use of the Available Funding.

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*Footnote:*

*3) The term “Alternative” is being used here to explain the various alternatives for best utilizing the Federal and State funding available for construction in the Central Valley. The term alternative should not be interpreted as identifying the range of alternatives being considered in the project-level NEPA/CEQA documents.*

**The Evaluated Alignment Sections that met the criteria and fit to the available funding are:**

1. **Central Valley Alternative 1: for a total of \$4.15 Billion** (approx. 65 miles of alignment plus 2 stations).

Please refer to Figure 4 and 5 of the attached “Backup Information, Maps and Data”. This alternative incorporates:

- Civil infrastructure including trackwork from a point approximately 0.6 miles south of Nevada Avenue near Corcoran northwards through Fresno to a point approximately 0.8 miles northwest of W. Herndon Ave.
- A basic High-Speed Rail (HSR) station in Fresno (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- A basic HSR station at Kings/Tulare Regional Station (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- A signaling system (Positive Train Control / PTC) as required for Independent Utility.
- Interconnectors to the BNSF line to ensure Independent Utility:
  - 3 miles reserved for Interconnector in Corcoran
  - An 8 mile Interconnector to a point approximately 0.4 miles north of Avenue 13, north of Fresno.

2. **Central Valley Alternative 2: for a total of \$3.5 Billion** (approx. 90 miles of alignment plus 1 station).

Please refer to Figure 6 and 7 of the attached “Backup Information, Maps and Data”. This alternative incorporates:

- Civil infrastructure including trackwork from a point approximately 4 miles south of Shafter (adjacent to the BNSF) northwards through the Corcoran bypass (C2 alignment) to a point where the BNSF line intersects E. American Avenue south of Fresno.
- A signaling system (PTC) as required for Independent Utility.
- A basic HSR station at Kings/Tulare Regional Station (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- Interconnectors to the BNSF lines approximately 4 miles south of Shafter and at E. American Avenue south of Fresno to ensure Independent Utility.

- 2A. **Central Valley Alternative 2A: for a total of \$4.3Billion** (approx. 90 miles of alignment plus 1 station).

Please refer to Figure 6 and 8 of the attached “Backup Information, Maps and Data”. This alternative incorporates:

- Civil infrastructure including trackwork from a point approximately 4 miles south of Shafter (adjacent to the BNSF) northwards through Corcoran (C1 alignment) to a point where the BNSF line intersects E. American Avenue south of Fresno.
- A signaling system (PTC) as required for Independent Utility.
- A basic HSR station at Kings/Tulare Regional Station (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- Interconnectors to the BNSF lines approximately 4 miles south of Shafter and at E. America Avenue south of Fresno to ensure Independent Utility.

**Please note: Alternatives 2 and 2A cover the same alignment, except for an optional alignment section (through or bypassing Corcoran) which will finally be determined by the CEQA/NEPA environmental process. These two alternatives would have to be chosen together, one being an alternative of the other.**

3. **Central Valley Alternative 3: for a total of \$2.7 Billion** (approx. 44.5 miles of alignment plus 1 station).

Please refer to Figure 9 and 10 of the attached “Backup Information, Maps and Data”. This alternative incorporates:

- Civil infrastructure including trackwork from V Street in Merced through Merced continuing west of Chowchilla on the hybrid alignment to a point approximately 1.75 miles south of Avenue 15, south of Madera, where the line will be adjacent to the BNSF existing network.
- The basic HSR station in Merced (including 2 tracks into and out of the station) which can be used by Amtrak in case of Independent Utility.
- A signaling system (PTC) as required for Independent Utility.
- An approximately 4.5 mile Interconnector to the BNSF line near Castle Commerce Center to ensure Independent Utility.

This alternative has some limitations which the Board must be made aware. As a final route/alignment decision has not yet been made, it could occur that “Operational Independence/ Independent Utility” may not be possible under certain conditions, such as if the UPRR alignment (A2) is chosen, no connection to BNSF will be possible at a reasonable cost and within reasonable time.

#### **E. Evaluation of the above Alternatives:**

The following actions have been taken:

- Staff evaluated each of these aforementioned Alternatives against the Board approved selection criteria. The results of the evaluation are summarized in the attached Appendix B.
- ARRA Central Valley Alternative 1 scored the highest in the evaluation and is the alternative recommended by staff for selection.
- Following is a brief description of the rationale for the scores shown in Appendix B:

*Note: Alternatives that fully meet a criterion are scored “10”; those not fully meeting the criteria are scored proportionately less than “10” depending on how well they meet each criterion.*

## 1. Evaluation of Alternative 1:

**Overall aggregate score (out of a possible 130 points): 110**

**Pass/Fail Criteria:** Pass

**Criterion I:** This alternative fully meets this criterion. Overall score: All 10s.

**Criterion II:** Right-of-way may be more difficult to acquire through the City of Fresno than in Alternative 2. Construction of the aerial guideway through Fresno is more difficult than construction in Alternative 2. Impact to existing railroad facilities is higher than Alternative 3. Overall this alternative was scored “8” on all three sub-criteria.

**Criterion III:** Schedule risk of achieving the ROD/NOD by the fall of 2011 is slightly higher than for the other three alternatives because for this section two NOD/ROD documents must be approved (both for Merced-Fresno and Fresno-Bakersfield). All other alternatives will require a single NOD/ROD for construction. In addition, the Authority is working through a process with the USEPA and USACOE to obtain concurrence on the range of alternatives being evaluated in the two EIR/EIS documents. This process is underway, and could have a potential for delay regarding providing USEPA and USACOE requested information on the elimination of a UPRR/SR 99 corridor from detailed study in the Fresno to Bakersfield Section EIR/EIS. Construction of this section is more complex than in Alternative 2A which somewhat increases the risk of delay. The third sub-criterion is not applicable. Scored “7” on sub-criteria a) and scored a “9” on b).

**Criterion IV:** This alternative fully meets this criterion. It is the only section which has two HSR stations, Fresno and Kings/Tulare Regional Station. This alternative also offers the best opportunity for the Authority to accommodate further funds from the FRA, in case money from other states becomes available, as connectivity with the BNSF alignment can be done with relative ease, as HSR runs adjacent to BNSF. Overall score: All 10s.

## 2. Evaluation of Alternative 2:

**Overall aggregate score (out of a possible 130 points): 102**

**Pass/Fail Criteria:** Pass

**Criterion I:** This alternative fully meets sub-criteria b) and c). Expansion of this alternative is constrained by long and expensive aerial guideway structures at both ends of this route, which could limit the expansion until a substantial amount of additional funding is available. (This sub-criterion was rated “7”.)

**Criterion II:** This alternative fully meets sub-criteria a) and b). This alternative involves more BNSF track relocation than Alternatives 1 and 3. (This sub-criterion was rated “6”.)

**Criterion III:** The Authority is working through a process with the USEPA and USACOE to obtain concurrence on the range of alternatives being evaluated in the two EIR/EIS documents. This process is underway, and could have a potential for delay regarding providing USEPA and USACOE requested information on the elimination of a UPRR/SR 99 corridor from detailed study in the Fresno to Bakersfield Section EIR/EIS. Sub-criterion a) was rated “8”. Section through the Corcoran by-pass is greatly complicated by the Tulare Wetlands Mitigation Area. (Sub-criterion b) was rated as “5”.)

**Criterion IV:** This alternative fully meets sub-criteria a), c), and d). This alternative serves only the Kings/Tulare Regional Station and therefore offers fewer connections to other modes of transportation, including public transit. (Score: “6”.)

### 3. Evaluation of Alternative 2A:

**Overall aggregate score (out of a possible 130 points): 105**

**Pass/Fail Criteria:** Pass

**Criterion I:** This alternative fully meets sub-criteria b) and c). Expansion of this alternative is constrained by long and expensive aerial guideway structures at both ends of this route, which could limit the expansion until a substantial amount of additional funding is available. (This sub-criterion was rated “7”.)

**Criterion II:** Right-of-way may be more difficult to acquire through Corcoran than in Alternative 2. Construction of the aerial guideway through Corcoran is more difficult than construction in Alternative 2. (a) was rated a “9” and b) was rated an “8”) This alternative involves more BNSF track relocation than Alternatives 1 and 3. (This sub-criterion was rated “7”.)

**Criterion III:** The Authority is working through a process with the USEPA and USACOE to obtain concurrence on the range of alternatives being evaluated in the two EIR/EIS documents. This process is underway, and could have a potential for delay regarding providing USEPA and USACOE requested information on the elimination of a UPRR/SR 99 corridor from detailed study in the Fresno to Bakersfield Section EIR/EIS. Sub-criterion a) was rated “8”. This alternative fully meets sub-criteria b). The third sub-criterion is not applicable.

**Criterion IV:** This alternative fully meets sub-criteria a), c), and d). This alternative serves on the Kings/Tulare Regional Station and therefore offers fewer connections to other modes of transportation, including public transit. (Score: “6”.)

### 4. Evaluation of Alternative 3:

**Overall aggregate score (out of a possible 130 points): 88**

**Pass/Fail Criteria:** Pass

**Criterion I:** This alternative provides the least logical expansion and evolution opportunities of any of the alternatives because the investment in infrastructure north of the “Wye” would not be fully utilized until the Phase 2 line to Sacramento is built. To achieve an operable HSR system as quickly and efficiently as possible, connectivity to the Bay Area and / or the Los Angeles Basin need to receive priority (Overall score: 5).

**Criterion II:** This alternative has the least impact to railroad facilities because it does not require any existing railroad track relocation. (Score:10) Right-of-way availability in Merced is more difficult than in Alternative 2. (Score:8)

**Criterion III:** This alternative only requires one NOD/ROD for construction. This alternative therefore involves only one concurrence from USEPA and the USACOE on the range of alternatives being studied in the project-level EIR/EIS, and does not include the issue of screening out the UPRR/SR 99 alternative between Fresno and Bakersfield, making it somewhat less complex. Sub-criteria c) is not applicable to this alternative.

**Criterion IV:** This alternative fully meets sub-criterion a) – Score 10. It can be connected to future connections to other modes of transportation including public transit in Merced, but there is only one HST station included in this alternative, so it was scored “8”. Since the portion of infrastructure constructed north of the “Wye” is not pivotal to ensure connectivity of a first HSR operable segment, it is rated low (“5”) in sub-criteria c) and d).

Our inability to guarantee “Operational Independence/ Independent Utility” for all alignments for this alternative adds a risk to this section. Not all alternatives which today exist are in the proximity of the BNSF alignment (e.g. the UPRR –A2 alignment).